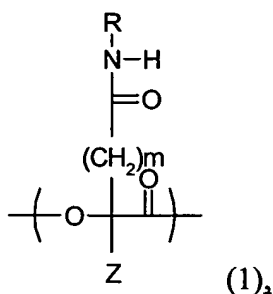


B. Claims

The following is a complete listing of the claims, and replaces all earlier versions and listings.

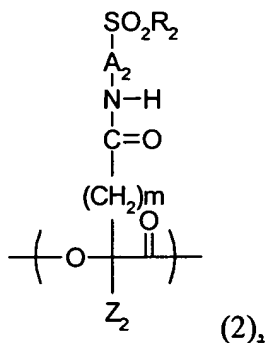
1. (Currently Amended) ~~Polyhydroxyalkanoate comprised of A~~
polyhydroxyalkanoate comprising at least a unit represented by a chemical formula (1)
within ~~the a~~ molecule:



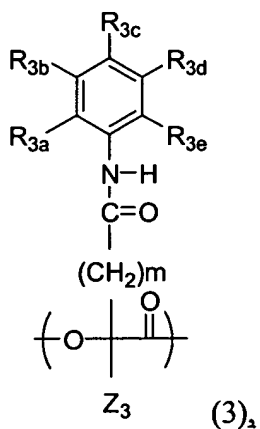
wherein R represents -A₁-SO₂R₁; R₁ represents OH, a halogen atom, ONa, OK or OR_{1a}; R_{1a} and A₁ each independently represents a group having a substituted or unsubstituted aliphatic hydrocarbon structure, a substituted or unsubstituted aromatic ring structure or a substituted or unsubstituted heterocyclic structure; m represents an integer selected from 0-8; Z represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, R, R₁, R_{1a}, A₁, m and Z have the aforementioned meanings independently for each unit.

2. (Currently Amended) ~~Polyhydroxyalkanoate~~ The
polyhydroxyalkanoate according to claim 1, ~~comprised of~~ comprising, as the unit

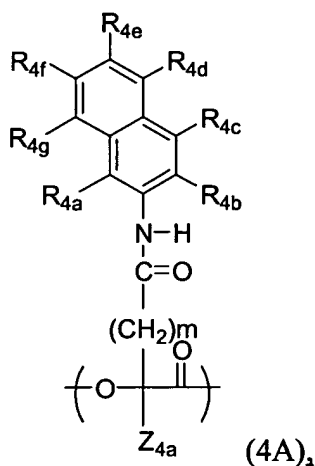
represented by the chemical formula (1), at least a unit represented by a chemical formula (2), a chemical formula (3), a chemical formula (4A) or (4B), within a molecule:



wherein R_2 represents OH, a halogen atom, ONa, OK or OR_{2a} ; R_{2a} represents a linear or branched alkyl group with 1 to 8 carbon atoms or a substituted or unsubstituted phenyl group; A_2 represents a linear or branched alkylene group with 1 to 8 carbon atoms; m represents an integer selected from 0 - 8; Z_2 represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, A_2 , R_2 , R_{2a} , m and Z_2 have the aforementioned meanings independently for each unit;

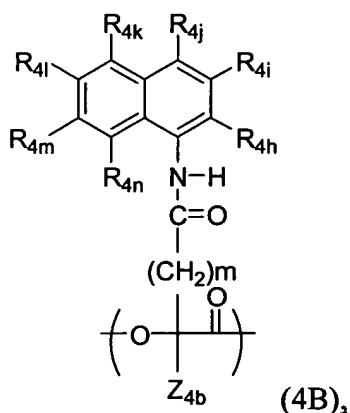


wherein R_{3a} , R_{3b} , R_{3c} , R_{3d} and R_{3e} each independently represents SO_2R_{3f} (R_{3f} representing OH, a halogen atom, ONa, OK or OR_{3fl} (R_{3fl} representing a linear or branched alkyl group with 1 to 8 carbon atoms or a substituted or unsubstituted phenyl group)), a hydrogen atom, a halogen atom, an alkyl group with 1 - 20 carbon atoms, an alkoxy group with 1 - 20 carbon atoms, an OH group, an NH_2 group, an NO_2 group, $COOR_{3g}$ (R_{3g} representing a H atom, a Na atom or a K atom), an acetamide group, an OPh group, a NHPH group, a CF_3 group, a C_2F_5 group or a C_3F_7 group (Ph indicating a phenyl group), of which at least one is SO_2R_{3f} ; m represents an integer selected from 0 - 8; Z_3 represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, R_{3a} , R_{3b} , R_{3c} , R_{3d} , R_{3e} , R_{3f} , R_{3fl} , R_{3g} , m and Z_3 have the aforementioned meanings independently for each unit;



wherein R_{4a} , R_{4b} , R_{4c} , R_{4d} , R_{4e} , R_{4f} and R_{4g} each independently represents SO_2R_{4o} (R_{4o} representing OH, a halogen atom, ONa, OK or OR_{4ol} (R_{4ol} representing a linear or branched alkyl group with 1 to 8 carbon atoms or a substituted or unsubstituted phenyl

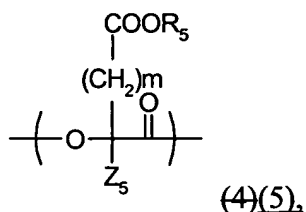
group)), a hydrogen atom, a halogen atom, an alkyl group with 1 - 20 carbon atoms, an alkoxy group with 1 - 20 carbon atoms, an OH group, an NH₂ group, an NO₂ group, COOR_{4p} (R_{4p} representing a H atom, a Na atom or a K atom), an acetamide group, an OPh group, an NHPPh group, a CF₃ group, a C₂F₅ group or a C₃F₇ group (Ph indicating a phenyl group), of which at least one is SO₂R_{4o}; m represents an integer selected from 0 - 8; Z_{4a} represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, R_{4a}, R_{4b}, R_{4c}, R_{4d}, R_{4e}, R_{4f}, R_{4g}, R_{4o}, R_{4ol}, R_{4p}, m and Z_{4a} have the aforementioned meanings independently for each unit;



wherein R_{4h}, R_{4i}, R_{4j}, R_{4k}, R_{4l}, R_{4m} and R_{4n} each independently represents SO₂R_{4o} (R_{4o} representing OH, a halogen atom, ONa, OK or OR_{4ol} (R_{4ol} representing a linear or branched alkyl group with 1 to 8 carbon atoms or a substituted or unsubstituted phenyl group)), a hydrogen atom, a halogen atom, an alkyl group with 1 - 20 carbon atoms, an alkoxy group with 1 - 20 carbon atoms, an OH group, an NH₂ group, an NO₂ group, COOR_{4p} (R_{4p} representing a H atom, a Na atom or a K atom), an acetamide group, an OPh group, an NHPPh group, a CF₃ group, a C₂F₅ group or a C₃F₇ group (Ph indicating a phenyl

group), of which at least one is SO_2R_{4o} ; m represents an integer selected from 0 - 8; Z_{4b} represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, R_{4h} , R_{4i} , R_{4j} , R_{4k} , R_{4l} , R_{4m} , R_{4n} , R_{4o} , R_{4ol} , R_{4p} , m and Z_{4b} have the aforementioned meanings independently for each unit.

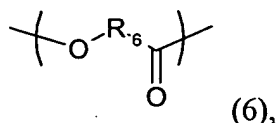
3. (Currently Amended) ~~Polyhydroxyalkanoate comprised of A~~
polyhydroxyalkanoate comprising at least a unit represented by a chemical formula (5)
 within a molecule:



wherein R_5 represents hydrogen, a group capable of forming a salt or R_{5a} ; R_{5a} represents a linear or branched alkyl group with 1 - 12 carbon atoms, an aralkyl group or a substituent having a sugar; m represents an integer selected from 0 - 8; Z_5 represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; however R_5 only represents a substituent having a sugar in case Z_5 is a methyl group and m is 0 - 1; and in case plural units are present, R_5 , R_{5a} , m and Z_5 have the aforementioned meanings independently for each unit.

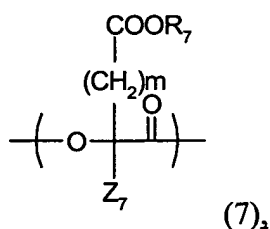
4. (Currently Amended) ~~Polyhydroxyalkanoate~~ The

polyhydroxyalkanoate according to ~~any one of claims 1 to 3~~ claim 1, further ~~comprised~~
~~of~~comprising a unit represented by a chemical formula (6) within a molecule:



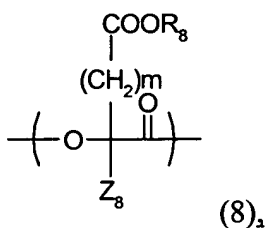
wherein R₆ represents a linear or branched alkylene with 1 - 11 carbon atoms,
 alkyleneoxyalkylene group (each alkylene group being independently with 1 - 2 carbon
 atoms), a linear or branched alkenyl group with 1 - 11 carbon atoms or an alkylidene group
 with 1 - 5 carbon atoms which may be substituted with an aryl group; and in case plural
 units are present, R₆ has the aforementioned meanings independently for each unit.

5. (Currently Amended) A method for producing a
 polyhydroxyalkanoate comprising a unit represented by a chemical formula (8), ~~comprised~~
~~of the method comprising~~ a step of executing hydrolysis of a polyhydroxyalkanoate
 comprising a unit represented by a chemical formula (7) in the presence of an acid or an
 alkali, or a step of executing hydrogenolysis comprising a catalytic reduction of a
 polyhydroxyalkanoate comprising a unit represented by a chemical formula (7):



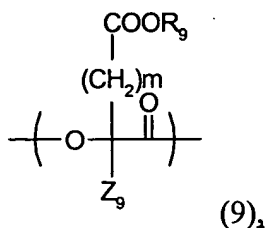
wherein R₇ represents a linear or branched alkyl group with 1 - 12 carbon atoms or an

aralkyl group; m represents an integer selected from 0 - 8; Z_7 represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group, and m represents an integer selected from 2 - 8 in case Z_7 is a methyl group; and in case plural units are present, R_7 , m and Z_7 have the aforementioned meanings independently for each unit;

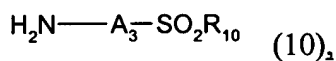


wherein R_8 represents hydrogen, or a group capable of forming a salt; m represents an integer selected from 0 - 8; Z_8 represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group, and m represents an integer selected from 2 - 8 in case Z_8 is a methyl group; and, in case plural units are present, R_8 , m and Z_8 have the aforementioned meanings independently for each unit.

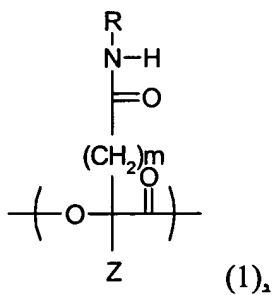
6. (Currently Amended) A method for producing a polyhydroxyalkanoate comprising a unit represented by a chemical formula (1), ~~comprised~~ of the method comprising a step of executing a condensation reaction of a polyhydroxyalkanoate comprising a unit represented by a chemical formula (9) and an amine compound represented by a chemical formula (10):



wherein R₉ represents hydrogen, or a group capable of forming a salt; m represents an integer selected from 0 - 8; Z₉ represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and, in case plural units are present, m, R₉ and Z₉ have the aforementioned meanings independently for each unit;



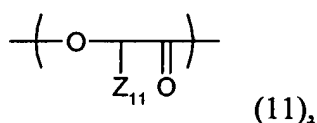
wherein R₁₀ represents OH, a halogen atom, ONa, OK or OR_{10a}; R_{10a} and A₃ each independently is selected from a group having a substituted or unsubstituted aliphatic hydrocarbon structure, a substituted or unsubstituted aromatic ring structure, or a substituted or unsubstituted heterocyclic structure; and, in case plural units are present, R₁₀, R_{10a} and A₃ have the aforementioned meanings independently for each unit;



wherein R represents -A₁-SO₂R₁; R₁ represents OH, a halogen atom, ONa, OK or OR_{1a}; R_{1a}

and A₁ each independently represents a group having a substituted or unsubstituted aliphatic hydrocarbon structure, a substituted or unsubstituted aromatic ring structure or a substituted or unsubstituted heterocyclic structure; m represents an integer selected from 0-8; Z represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, R, R₁, R_{1a}, A₁, m and Z have the aforementioned meanings independently for each unit.

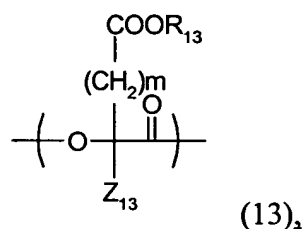
7. (Currently Amended) A method for producing a polyhydroxyalkanoate comprising a unit represented by a chemical formula (13),
~~comprised of the method comprising:~~
 a step of reacting a polyhydroxyalkanoate comprising a unit represented by a chemical formula (11) with a base; and
 a step of reacting a compound obtained in the aforementioned step with a compound represented by a chemical formula (12):



wherein Z₁₁ represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, Z₁₁ has the aforementioned meanings independently for each unit;



wherein m represents an integer selected from 0 - 8; X represents a halogen atom; and R₁₂ represents a linear or branched alkyl group with 1 - 12 carbon atoms or an aralkyl group;

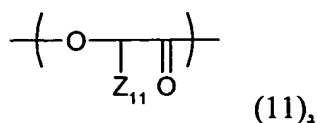


wherein m represents an integer selected from 0 - 8; R₁₃ represents a linear or branched alkyl group with 1 - 12 carbon atoms or an aralkyl group; Z₁₃ represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group, and m represents an integer selected from 2 - 8 in case Z₁₃ is a methyl group; and in case plural units are present, R₁₃, m and Z₁₃ have the aforementioned meanings independently for each unit.

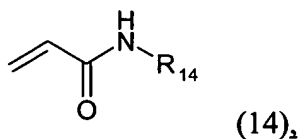
8. (Currently Amended) A method for producing a polyhydroxyalkanoate comprising a unit represented by a chemical formula (15),
~~comprised of the method comprising:~~

a step of reacting a polyhydroxyalkanoate comprising a unit represented by a chemical formula (11) with a base; and

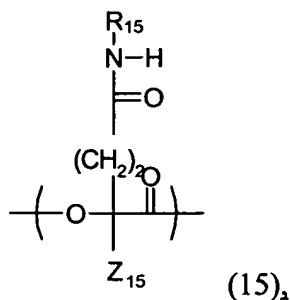
a step of reacting a compound obtained in the aforementioned step with a compound represented by a chemical formula (14):



wherein Z_{11} represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, Z_{11} has the aforementioned meanings independently for each unit;



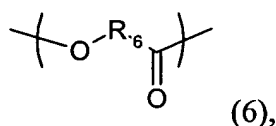
wherein R_{14} represents $-\text{A}_{14}-\text{SO}_2\text{R}_{14a}$; R_{14a} represents OH, a halogen atom, ONa, OK or OR_{14b} ; R_{14b} and A_{14} each independently is selected from a group having a substituted or unsubstituted aliphatic hydrocarbon structure, a substituted or unsubstituted aromatic ring structure or a substituted or unsubstituted heterocyclic structure; and in case plural units are present, R_{14} , R_{14a} , R_{14b} , and A_{14} have the aforementioned meanings independently for each unit;



wherein R_{15} represents $-\text{A}_{15}-\text{SO}_2\text{R}_{15a}$; R_{15a} represents OH, a halogen atom, ONa, OK or OR_{15b} ; R_{15b} and A_{15} each independently represents a group having a substituted or

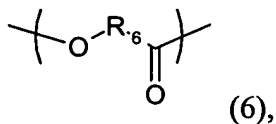
unsubstituted aliphatic hydrocarbon structure, a substituted or unsubstituted aromatic ring structure or a substituted or unsubstituted heterocyclic structure; Z_{15} represents a linear or branched alkyl group, an aryl group or an aralkyl group substituted with an aryl group; and in case plural units are present, R_{15} , R_{15a} , R_{15b} , and A_{15} have the aforementioned meanings independently for each unit.

9. (New) The polyhydroxyalkanoate according to claim 2, further comprising a unit represented by a chemical formula (6) within a molecule:



wherein R_6 represents a linear or branched alkylene with 1 - 11 carbon atoms, alkyleneoxyalkylene group (each alkylene group being independently with 1 - 2 carbon atoms), a linear or branched alkenyl group with 1 - 11 carbon atoms or an alkylidene group with 1 - 5 carbon atoms which may be substituted with an aryl group; and in case plural units are present, R_6 has the aforementioned meanings independently for each unit.

10. (New) The polyhydroxyalkanoate according to claim 3, further comprising a unit represented by a chemical formula (6) within a molecule:



wherein R_6 represents a linear or branched alkylene with 1 - 11 carbon atoms, alkyleneoxyalkylene group (each alkylene group being independently with 1 - 2 carbon atoms), a linear or branched alkenyl group with 1 - 11 carbon atoms or an alkylidene group with 1 - 5 carbon atoms which may be substituted with an aryl group; and in case plural units are present, R_6 has the aforementioned meanings independently for each unit.